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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
COTTON, ABIGAIL MANDA	
ART UNIT	**PAPER NUMBER**
1617	

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,934	CHANDRASEKAR ET AL.	
	Examiner	Art Unit	
	Abigail M. Cotton	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,10,16,17,20-24,26,27 and 30-38* is/are pending in the application.

4a) Of the above claim(s) *34-38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,10,16,17,20-24,26,27 and 30-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/23/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 10, 2006, has been entered.

Claims 9-10, 16-17, 20-24, 26-27 and 30-38 are pending in the application, with claims 34-38 being withdrawn as drawn to a non-elected invention. Accordingly, claims 9-10, 16-17, 20-24, 26-27 and 30-33 are being examined on the merits herein.

The rejection of claims 9 and 24 under 35 U.S.C. 102(b) over the article to Dai-Do et al. is being withdrawn in view of Applicant's amendments to the claim, as Dai-Do et al. does not specifically teach administering 17-beta estradiol at an injured site in the lumen of a blood vessel with a device, as recited in newly amended claim 9. The rejection of claims 9-10, 18-19, 24 and 28-29 under 35 U.S.C. 102(b) as being anticipated by the patent to Ungs is also being withdrawn in view of Applicant's amendments to the claims, as Ungs does not specifically teach the method with the administration of 17beta estradiol in the dosage range of from 1 to 5000 μk/Kg of patient's body weight, as recited in amended claim 9.

The terminal disclaimer filed on October 6, 2006 disclaiming the terminal portion of any patent granted on this application that would extend beyond the expiration date of co-pending U.S. Patent Application Serial No. 10/088,405 has been reviewed and is accepted. The terminal disclaimer has been recorded. Accordingly, the provisional obviousness-type double-patenting rejection made over this reference is being withdrawn.

The newly amended claims are being rejected as set forth below.

Election/Restrictions

Newly submitted claims 34-38 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Newly submitted claims 34-38 are drawn to a device for local intracoronary delivery, whereas the previously pending claims are directed to a method for reducing restenosis in a patient having suffered a vascular injury, and thus the claims are related as product and process of using. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h).

In the instant case, the method as claimed can be practiced with a materially different product, such as a device that delivers a different restenosis reducing compounds, such as 27-hydroxycholersterol, as described for example by U.S. Patent No. 5,376,652.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Additionally, a further search for both sets of claims would pose an undue burden on the office, as the searches would not necessarily be co-extensive. Accordingly, claims 34-38 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-10, 16-17, 20-24, 26-27, 30 and 32-33 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 5,866,561 to Mark T. Ungs, issued February 2, 1999.

Ungs teaches a method for inducing angiogenesis in blood vessels proximal to stenosed regions, including application of an estrogen compound to the blood vessel walls at a treatment site proximal to or upstream of the stenosis (see abstract, in particular.) Ungs teaches that restenosis following PTCA is a signification problem, and that administration of estrogen to the stenosed, dilated region after PTCA has been suggested for the purposes of preventing restenosis (see column 1, lines 10-20 and 40-52, in particular), and thus teaches administration to an injured site, i.e. a vascular site that has been injured by PTCA. Ungs teaches that it is thus desirable to increase perfusion to heart tissue in place of or in addition to PTCA treatment (see column 1, lines 54-65, in particular.) Ungs teaches that a preferred method of treating stenosis involves application with a double walled drug delivery balloon catheter, as well as by coating a stent with an estrogen compound or by puncturing a vessel wall (see column 2, lines 5-45, in particular), and thus teaches administration with a device, as recited in claim 9. Ungs teaches that preferred estrogen compounds include 17-Beta estradiol (see column 4, lines 1-12, in particular), as in claim 9. Accordingly, Ungs teaches administration of 17-Beta estradiol in the lumen of a blood vessel having suffered vascular injury.

Ungs does not specifically teach administration in the unit doses as recited in claims 9, 16-17, 24 and 26-27.

However, it is noted that Ungs teaches that 17Beta-estradiol is a preferred estrogen compound (see column 4, liens 1-11, in particular), and Ungs also teaches various methods of application of the estrogen via catheters, stents, etc, and refers to prior art catheter, for example, that are used for the local administration of drugs (see column 3, lines 1-15, in particular.) Furthermore, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to vary and/or optimize the amount of 17Beta-estradiol provided in the method, according to the guidance provided by Ungs, to provide the desired treatment, such as the desired reduction in restenosis. It is noted that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955.)

Accordingly, claims 9, 16-17, 24 and 26-27 are considered to be unpatentable over Ungs.

It is furthermore respectfully pointed out that the recitation "for reducing restenosis" in claim 9 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *in re*

Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152 88 USPQ 478, 481 (CCPA 1951.) Furthermore, it is noted that as Ungs teaches administering the same compound via the same method as that instantly claimed, and to reduce the incidence of restenosis following a treatment such as PTCA that induces vascular injury, it is considered that the method of Ungs would necessarily also reduce restenosis in a patient having suffered vascular injury, as recited in the claim.

Regarding claims 10 and 30, Ungs teaches that the estrogen can be administered with an ionic carrier in an iontophoresis method using delivery balloon catheter (see column 2, lines 32-40, in particular.) Regarding claims 20-21 and 30, Ungs teaches administration of 17-Beta estradiol in the lumen of a blood vessel having suffered vascular injury, for example via catheter or a stent (see column 2, lines 5-45, in particular.)

Regarding claims 22-23 and 32-33, Ungs teaches that restenosis following PTCA is a significant problem (see column 1, lines 10-20, in particular), and teaches that treatment to increase perfusion to heart tissue, such as with estrogen compounds, are desirably performed in place of, or in addition to, PTCA (see column 1, lines 50-65, in particular.) Accordingly, one of ordinary skill in the art at the time the invention was made would have found it obvious to provide the 17-beta estradiol following or simultaneously with the PTCA, based on the teachings of Ungs, with the expectation of increasing perfusion to heart tissue and for reducing the likelihood of restenosis.

Claims 31 is rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 5,866,561 to Mark T. Ungs, issued February 2, 1999, as applied to claims 9-10, 16-17, 20-24, 26-27, 30 and 32-33 above, and further in view of U.S. Patent No. 5,439,446 to James Barry, issued August 8, 1995.

Ungs is applied as discussed above, and teaches the administration of 17beta-estradiol via device such as a stent or catheter for the treatment of restenosis.

Ungs does not specifically teach administering the 17beta-estradiol on a stent with a pharmaceutically acceptable carrier, as recited in claim 31.

Barry teaches a stent and therapeutic delivery system (see abstract, in particular.) Barry teaches that the stent can be used to provide active agents, and that the active agents can be provided by encapsulating in a dissolving material (pharmaceutically acceptable carrier), such as albumin or a polymer, to effect a continuing release from the stent. Thus, Barry teaches that it is known to provide a pharmaceutically acceptable carrier in combination with drug delivery from a stent.

Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to provide the pharmaceutically acceptable carrier of Barry in the method of Ungs, because Ungs teaches delivering a

drug via a stent, and Barry teaches that it is known to provide pharmaceutically acceptable dissolving material with the delivery of drugs via a stent to provide continued release of the drug. Thus, one of ordinary skill in the art would have been motivated to provide the pharmaceutically acceptable dissolving carrier in the method of Ungs with the expectation of providing a desired release of the 17beta-estradiol drug.

Response to Arguments

Applicant's arguments with respect to the rejections of the claims have been considered but are moot in view of the new grounds of rejection.

In particular, Applicant's argue that Ungs does not teach providing the specific dosage as recited in the claim. However, the Examiner notes that, as discussed above "where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955.) Ungs teaches the desirability of providing 17beta-estradiol according to the claimed method. Accordingly, it is considered that one of ordinary skill in the art would have found it obvious to vary/and or optimize the amount of the estradiol provided, such as to achieve the amounts as claimed, with the expectation of providing a suitable restenosis treatment method.

The declaration filed under Rule 132 on October 6, 2006 and signed by Dr. Richard Sean Stack on July 25, 2005 has been fully considered, but has not been found persuasive. In particular, the declaration provides statements arguing that it cannot be predicted whether an agent known to prevent or reduce smooth muscle cell proliferation and/or to prevent or reduce blood vessel wall thickening will also promote reendothelization, as recited in the claim (see point 12, in particular.) Thus, the declaration argues that the knowledge that beta-estradiol had an ability to reduce smooth muscle cell proliferation is not sufficient for someone skilled in the art, to predict that beta-estradiol could also promote re-endothelization and endothelial function (see point 14, in particular.)

These arguments are not found persuasive because, as noted above, since Ungs teaches administering the same compound via the same method steps as those instantly claimed, it is considered that the method of Ungs also necessarily improves reendothelization and vascular endothelial function. The fact that applicant has recognized another advantage which would flow naturally from following the teachings or suggestion of the prior art cannot be the basis for patentability when the prior art teaches the invention or when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abigail M. Cotton whose telephone number is (571) 272-8779. The examiner can normally be reached on 9:30-6:00, M-F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMC

SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER